IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

ENTRY PANEL PROCESSING SYSTEM

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FIELD OF THE INVENTION

The present invention relates generally to information

10 processing systems and more particularly to a methodology
and implementation for processing information input panels.

BACKGROUND OF THE INVENTION

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Modern computer systems are designed to enable concurrent
access to many applications at the same time. In networked
systems, each of a number of different applications is
displayed and executed within a different window on a

20 display screen. If a user is running a browser program over
the Internet, many websites may be accessed and run through
different windows at the same time. Generally, the
particular application or website window which is being
worked by a user at any given time is overlaid on top of

25 other windows containing other applications and websites.
The user is able to switch among the windows to arrange
selected window as the "top" window on the user's display
screen within which the user is currently working.

30 For security and other reasons, many of the sites and
applications which are accessible to a user require the
input and processing of user logon information before access
to the application or website is granted to a requesting

user. Typically, a login panel or display window is presented to the user requesting input of the user identification and possibly a user password. In most cases, there is a time delay between the time access to a site is

5   requested by a user and the time that the logon display panel for that site is presented. If the user does not respond to the login panel relatively quickly, the login panel may be covered by another panel or window from another running program which is or has been performing a task in

10   the background. In that case the user may not be aware that the logon panel is present but not visible since it is "underneath" the top window on the user's display screen. Thus the user may not know that the user is being prompted to enter the requested security or other information.

15   Subsequent attempts to use the requested window may then fail since the user never logged in and the appropriate security or other credentials were not given in response to the prompting login panel. In that case, the user will need to attempt another access to the requested site and incur

20   the consequences of further processing delays.

Thus, there is a need for an improved methodology and implementing system which provides a means by which a user is made aware of the presence of a covered prompting display

25   panel which requires user attention.

SUMMARY OF THE INVENTION

30   A method and implementing computer system are provided in which user alert signals are generated whenever an underlying display window in a multi-window display environment requires user attention. In one exemplary embodiment, the user is enabled to specify various preferred

characteristics of the alert signals. The alert signals include audio signals, video signals and combinations of selected audio and visual signals. The user is further enabled to specify input an alert repeat interval to define

5   an elapsed time between successive alert signals.

BRIEF DESCRIPTION OF THE DRAWINGS

10   A better understanding of the present invention can be obtained when the following detailed description of a preferred embodiment is considered in conjunction with the following drawings, in which:

15   Figure 1 is a diagram of a computer system in which the present invention may be implemented;

Figure 2 is a simplified schematic diagram showing selected components and subsystems of the computer system illustrated

20   in Figure 1;

Figure 3 is an illustration of an exemplary display screen sequence helpful in explaining one aspect of the present invention;

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Figure 4 is a flow chart illustrating an exemplary implementation of the disclosed processing system; and

Figure 5 is a flow chart illustrating an exemplary

30   operational sequence in a multiple window process.

DETAILED DESCRIPTION

The various methods discussed herein may be implemented within a typical computer system which may include a
5 workstation or personal computer. In general, an implementing computer system may include a plurality of processors in a multi-bus system in a network of similar systems. However, since the workstation or computer system implementing the present invention in an exemplary
10 embodiment, is generally known in the art and composed of electronic components and circuits which are also generally known to those skilled in the art, circuit details beyond those shown in the drawings are not specified to any greater extent than that considered necessary as illustrated, for
15 the understanding and appreciation of the underlying concepts of the present invention and in order not to obfuscate or distract from the teachings of the present invention.

20 In Figure 1, a computer system 101 includes an electronics enclosure 103 which is typically arranged for housing one or more CPUs (central processing units) along with other component devices and subsystems of the computer system 101. The computer system 101 also includes a monitor or display
25 unit 105, a keyboard 107 and a mouse or pointing device 109, which are all interconnected within the illustrated computer system. Also shown is a connector 111 which is arranged for connecting a modem within the computer system to a communication line such as a telephone line in the present
30 example. The present invention may also be implemented in a cellular system or other hard-wired or cable system without the connector 111.

Several of the major components of the system 101 are
illustrated in Figure 2. A processor circuit 201 is
connected to a system bus 203 which may be any host system
bus. It is noted that the processing methodology disclosed
5 herein will apply to many different bus and/or network
configurations. A cache memory device 205, and a system
memory unit 207 are also connected to the bus 203. A modem
209 is arranged for connection 210 to a communication line,
such as a telephone line, through a connector 111 (Figure
10 1). The modem 209, in the present example, selectively
enables the computer system 101 to establish a communication
link and initiate communication with another computer
system, or network or database server.

15 The system bus 203 is also connected through an input
interface circuit 211 to a keyboard 213 and a mouse or other
pointing device 215. The bus 203 is also coupled to a
separate network subsystem interface 217, which may be
connected directly in a network, and a diskette drive unit
20 219. A video subsystem 220, which may include a graphics
subsystem, is connected to a display device 221. A storage
device 218, which may comprise a hard drive unit or CD ROM,
is also coupled to the bus 203. The diskette drive unit 219
provides a means by which individual diskette programs may
25 be loaded on to the hard drive, or accessed directly, for
selective execution by the computer system 101. As is well
known, program diskettes or CDs containing application
programs represented by magnetic or optical indicia on the
diskette or CD, respectively, or programs in system memory,
30 or acquired through a local network or through the world
wide web may be read to provide program signals. Such
program signals are selectively effective to cause the
computer system to present displays on the screen of a

display device and respond to user inputs in accordance with the functional flow of the application program being executed.

5   As herein disclosed, the present invention is explained in an Internet context although the invention is equally applicable to other multiple-window and network environments through which access may be had to a number of different applications, running through seperate windows. The

10   disclosed methodology in an exemplary embodiment has been implemented within a browser program which is operating on the Internet to access a number of different selected websites through separate windows.

15   As the program is running, either a portion of the program or the entire program may be loaded into the system memory 207 and/or the system cache memory 205. Assuming a user has started-up the system, and is actively running a browser program for example, from memory, a series of screens will

20   be displayed to the user on the display device 221. Each screen typically has one or more selections for the user to make in navigating through the World Wide Web for example. In general, a user will make selections from a display screen using the keyboard 213 or the mouse or pointer device

25   215. In an Internet operating program, the selections made by the user will determine "where" the user "goes", i.e. to what "site" or "webpage", and also, in some cases, the communications link or the path taken to get to the site selected.

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As hereinbefore discussed, in a multiple window environment, an application or site logon screen may be presented on a user display and immediately covered by another window from another program such that a user may not become aware that

the logon panel was presented. As a consequence, the user
never logs on or inputs the requested logon information and
never accesses the requested website. This problem can be
solved by allowing the logon panel to always be on top of

5   all other windows or by periodically bringing the logon
panel to the foreground based upon a time interval that is
set by the user. If the user decides to set the logon panel
to always be on top of other windows, the logon panel will
remain as the top window until the user inputs the requested

10 logon information. The logon panel is a system-wide model
panel which will prevent all other windows from overlaying
the logon window. This forces the user to enter the
requested logon information before proceeding with any other
task.

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Since, at times, the system-wide panel approach is not
acceptable to the user because the user may need to handle
other tasks before providing input to the login panel, a
second mode is herein provided by which a user is enable to

20 define a time period such that the login panel is brought to
the foreground of the display at regular intervals. If any
window covers the login panel, the login panel will be
brought to the foreground after the user-defined time
period. Visual (e.g. "blinking" or "flashing" etc.) or audio

25 (e.g. tone, multi-tone or other sounds) alert signals inform
the user that the login panel has been re-displayed and
requires user attention. The user is able to define the type
of alert signal preferred by the user. This enablement
allows the user to set a distinctive and recognizable sound

30 for the alert signal to distinguish the alert signal from
other sounds which may be generated by other running
programs. The "time interval" approach does not require the
user's immediate response and the login panel will be
periodically displayed on top of the user screen until the

user responds and provides the requested information. It is
noted that although a logon function is used in the present
example, the invention also applies to any input panel which
requires user input before a program may be continued.

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Figure 3 illustrates a typical browser program screen
display 301. The browser screen generally includes a first
menubar 303 which displays several different modes which the
user may select such as the "EDIT" selection 304 and the
10   "BOOKMARKS" selection 308. Another menubar 305 may be
displayed to help a user quickly move through documents,
sites, or pages in a network application. An address or
"location" section 306 enables a user to key-in, and also
displays the name of, an internet address of a site to be,
15   or being, visited. Other quick access buttons may be
implemented on the screen for quick access to other selected
network services and/or network functions. In general, any
of the illustrated items may be selected through a "point
and click" methodology associated with the mouse device 215,
20   and a cursor or pointer indicium 313 visible on the display
screen. For example, a download of data from a remote site
may be immediately terminated during the transmission by
pointing to a stop button "X" and clicking on a designated
mouse button. Similarly, the "Back" and "Forward" arrow
25   buttons may be used to return to the last screen display or
go forward to the next screen display, respectively.

As shown in Figure 3, a user is enabled to define the user's
choice of alert signals which will be used in alerting the
30   user to the presence of a logon or other input screen. Among
other options, as hereinafter described, the user may select
to have the alert signal presented with or without the
overlay of the associated logon screen. In setting the
preferences of the user, the user initially moves the

pointer 309 and clicks on the EDIT function 304 in the
present example. The user alert signal preference sequence
may also be programmed to be initiated from other icons but
the EDIT function is used in the present example. At that

5   time a secondary screen 311 will appear and one of the
choices presented to the user is the "PREFERENCES" choice.
When the user points to 313 and clicks on the PREFERENCES
text, an INPUT/LOGON PANELS window 315 is presented. This
window allows the user to select a mode for handling logon

10   or input panels or windows, and also to select the type and
duration of the alert signals associated with the presence
of the logon panel or window. As shown, by pointing to and
clicking within the appropriate boxes, the user may select
to have the logon panel always presented on top of other

15   windows or to allow multiple window functioning. In the
example the user has selected multiple window functioning by
clicking within the corresponding square. Several additional
selections are available in the multiple window mode. As
shown in the example, the user has selected a top overlay

20   of the logon window to appear every 15 seconds. The user may
define any time interval desired by the user. The user has
also selected an audio two-tone alert to distinguish this
alert signal from other sounds which may be generated by
other programs running on the computer. Other types of

25   sounds may also be listed for selection such as chimes,
sirens, etc. A user may also select a type of video alert
such as a flashing window or sequencing colors of the logon
window. Any one of the audio and video signals may selected
by itself or in combination with any other type of video or

30   audio type. The preferences listed are only partial lists
and many more types of alerts may be included on the
preference menu 315. After making appropriate selections,
the user enters the selections by pointing 317 and clicking
on the CLOSE hypertext. At that time, the selected logon

panel alert signal processing will be applied to any logon
or other entry panels which are presented on the user's
display.

5   After entering the user preferences as illustrated in Figure
3, the user-preferred logon panel processing sequence is
set. As shown in Figure 4, the logon processing begins 401
and when the presentation of a logon panel is detected 403,
the user preferences are retrieved 405. If the preferences
10   indicate that the logon panel should always be on top 407,
then the program maintains the logon panel as the top window
409 until input is received from the user or the logon
window is closed by the user 411 at which time the process
returns to the browser program. If the user preferences
15   indicate that multiple windows are not allowed 415 then the
processing will continue using default preferences 417 and
return 419 to the browser program flow.

As shown in Figure 5, if multiple window functioning is
20   allowed 501 as indicated in the user preferences 315 (Figure
3), then the process checks to determine if a periodic
reminder preference has been selected 503. If not, then the
processing returns to the browser program flow. If the user
had checked the periodic reminder preference 503, then
25   checks are made to determine 507 and implement 509 the type
of audio alert selected, and also to determine 511 and
implement 513 the type of video alert selected. All of the
selected alerts are executed at the interval selected by the
user as determined from the preference menu screen 315,
30   until the required user input to the logon panel has been
received. After implementing the selected audio and video
alerts, the process will be returned to the browser program.

Although the present invention has been described herein in connection with a user terminal comprising a personal computer, it is understood that the disclosed methodology may also be implemented in other user terminal devices

5 including portable, wireless and mobile devices which include input and display means. Further, although the method and apparatus of the present invention has been described in connection with a preferred embodiment as disclosed herein, it is understood that the disclosed

10 methodology may be implemented in a wide range of sequences, menus and screen designs to accomplish the desired results as herein illustrated. Although an embodiment of the present invention has been shown and described in detail herein, along with certain variants thereof, many other varied

15 embodiments that incorporate the teachings of the invention may be easily constructed by those skilled in the art, and even included or integrated into a processor or CPU or other larger system integrated circuit or chip. The disclosed methodology may also be implemented partially or totally in

20 program code stored on a disk or diskette (portable or fixed), or other memory device, from which it may be executed to achieve the beneficial results as described herein. Accordingly, the present invention is not intended to be limited to the specific form set forth herein, but on

25 the contrary, it is intended to cover such alternatives, modifications, and equivalents, as can be reasonably included within the spirit and scope of the invention.